

A New Monotypic Genus of the Compositae-Astereae from the Cape Province, South Africa

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The new genus *Roodebergia* B. Nord. (Compositae-Astereae) is described from the Cape Province, South Africa, with a single species, *R. kitamura* B. Nord. sp. nov. The closest affinities may be with *Felicia* Cass. and other African members of the *Amellus* Group.

Key words: *Amellus* Group, Cape Province, Compositae, new genus, *Roodebergia*, taxonomy, tribe *Astereae*

The plant to be described here was found in 1959 on the Roodeberg in the Hex River Mountains of Cape Province, South Africa, by the indefatigable collector Elsie Esterhuysen. She must have sensed the peculiarity of the plant and made a rich collection, of which I have studied five sheets. In habit the plant somewhat resembles *Felicia*, but the monographer of that genus, Prof. J. Grau of Munich, disqualified it as such and instead suggested *Pteronia* (in sched., 1972). However, it does not fit in that genus either, nor in any other known genus of the tribe *Astereae*, where it clearly belongs. I name it *Roodebergia* after the locality and *R. kitamura* in memory of Professor Kitamura.

Description and Discussion

***Roodebergia kitamura* B. Nord., gen. et sp. nov.**
(Compositae-Astereae)

Herba perennis diffusa laxa ramosa, caules

repentes ad nodos radicanter ramis ascendentibus 1-2 dm altis tenuibus teretibus hirsuto-hispidis et glandulosis. Folia opposita erecto-patentia vel patentia anguste elliptico-oblonga integerrima c. 1-1.5 cm longa et 0.4 cm lata plana herbacea utrinque dense albo-hirsuto-hispida apice obtusa. Pedunculi terminales plerumque c. 5 (2-11) cm longi subnudi bractea solitaria parva instructi. Capitula solitaria homogama discoidea. Receptaculum glabrum alveolatum. Involucrum plus minusve biseriatum, bracteis c. 10 subaequalibus anguste oblongo-lanceolatis glandulosis et sparse setaceis. Flosculi hermaphroditi, corolla tubulosa sensim ampliata purpurascens breviter quinquelobata, lobi triangulari-ovati glandulis duabus marginalibus instructi. Antherae basi obtusae ecaudatae, appendice apicali ovati acuti. Styli rami lineares, lineis stigmaticis angustis ventromarginalibus, appendice apicali sterili triangulari ovata papillosa papillis apice rotundatis. Cypselae anguste elliptico-oblongae aliquantum compressae glabrae binervatae. Pappi setae numerosae biseriatae aequales barbel-

The present paper is dedicated to the memory of Professor Siro Kitamura, outstanding scholar and leading expert on the family Compositae.

latae persistentes basi connatae.

Typus: SOUTH AFRICA, Cape Prov., Worcester Div.: Roodeberg, Hex River Mountains, rocky slope, SW aspect, facing Groothoek Peak, 6000', 18.I.1959, *E. Esterhuysen 28133* (BOL holo!, 3 iso!; NBG iso.; S iso!).

Perennial diffuse branching herb, rooting at nodes, with \pm ascending stems and branches, 1-2 dm high. Stems and branches slender, ca. 1 mm thick or less, terete, hirsute-hispid with white spreading acuminate hairs and shorter glandular hairs. Leaves opposite with internodes 2-12 mm long, erecto-patent to spreading, narrowly elliptic-oblong, 8-16 mm long, 3-4 mm wide (smaller on sterile shoots), entire, obtuse, flat, herbaceous, dull green, rather densely hirsute-hispid on both sides with ca. 1 mm long trichomes swollen at base and tapering to fine acuminate points, finely midveined below; leaf margins entire; leaf-base half-clasping. Peduncles terminal, 2-11 cm long, faintly striate, naked except for a single narrowly linear-filiform bract 2-5 mm long and situated near the middle or more proximally. Capitula solitary, erect, homogamous, discoid, 1-1.5 cm in diam. Involucre more or less biseriate, cup-shaped; involucre bracts ca. 10, narrowly oblong-lanceolate, 8 mm long, 1-1.2 mm wide, subequal, midveined and with fainter parallel veins, shortly glandular and sparsely setose, tips somewhat villous; 1-2 outermost phyllaries somewhat smaller, ca. 5 mm long and 0.7-0.8 mm wide. Receptacle flat, glabrous, alveolate. Florets ca. 15-25, hermaphroditic. Corolla tubular, somewhat widening upwards, 7.5 mm long, purplish, glabrous except for some small multicellular glandular hairs on lobe tips, shortly 5-lobed; lobes triangular-ovate, 0.7 mm long, acute, each lobe with two distinct elongate resin glands marginally and proximally, also with fine lateral veins running down the corolla from the sinuses between lobes; no midvein or midline. Anthers 2.5-2.7 mm long incl. the ovate, acute apical appendage; base obtuse, ecaudate; endothecium radial with numerous thickenings on longitudinal (vertical) walls;

filament collar straight, uniform, 0.4 mm long. Style terete, 2-veined, each branch receiving one vein; branches linear, 2 mm long, proximal half with narrow lateral stigmatic lines, distal half a narrowly triangular-ovate or lanceolate appendage: subacute, sterile, papillate with oblong papillae with rounded tips. Cypselas narrowly elliptic-oblong, somewhat compressed but without marginal ribs, 6-7 mm long, 1.5 mm wide, glabrous but with scattered microscopic duplex trichomes especially in the proximal half (these hairs 3-celled, erecto-patent, 5-13 μ m long, with obtuse-rounded apex), light brown, smooth, shiny, distinctly 2-veined marginally; carpopodium distinct, of 10-15 cell rows; ovary crystals numerous, very small and of different shapes, quadratic, oblong, spindle- or needle-shaped. Pappus bristles numerous, biseriate, equal, distinctly barbellate with slender, acute teeth, 7-8 mm long, straight, whitish, basally shortly connate to a dark-coloured annulus. Pollen grains ca. 30 μ m in diam., minutely spinulose.

Only known from the type collection. It was collected flowering in January, and the habitat is a rocky mountain slope at 1850 m s.m.

Roodebergia kitamura has a characteristic habit, being a perennial herb rooting at the nodes, with opposite leaves and solitary discoid capitula with reddish hermaphroditic florets. The style is typical of the tribe *Astereae* with a large, apical, sterile narrowly triangular-ovate appendage and with narrow ventromarginal stigmatic lines along the lower half of the style branch.

The cypselas look glabrous to the naked eye, but carry microscopic scattered twin hairs especially proximally. They are of the normal three-celled type with two parallel cells and a smaller basal cell (Fig. 1G).

The subtribal classification in the *Astereae* has been notoriously problematic ever since Bentham's recognition of six subtribes (Bentham 1873a) in spite of his own opinion on the tribe's "not being divisible

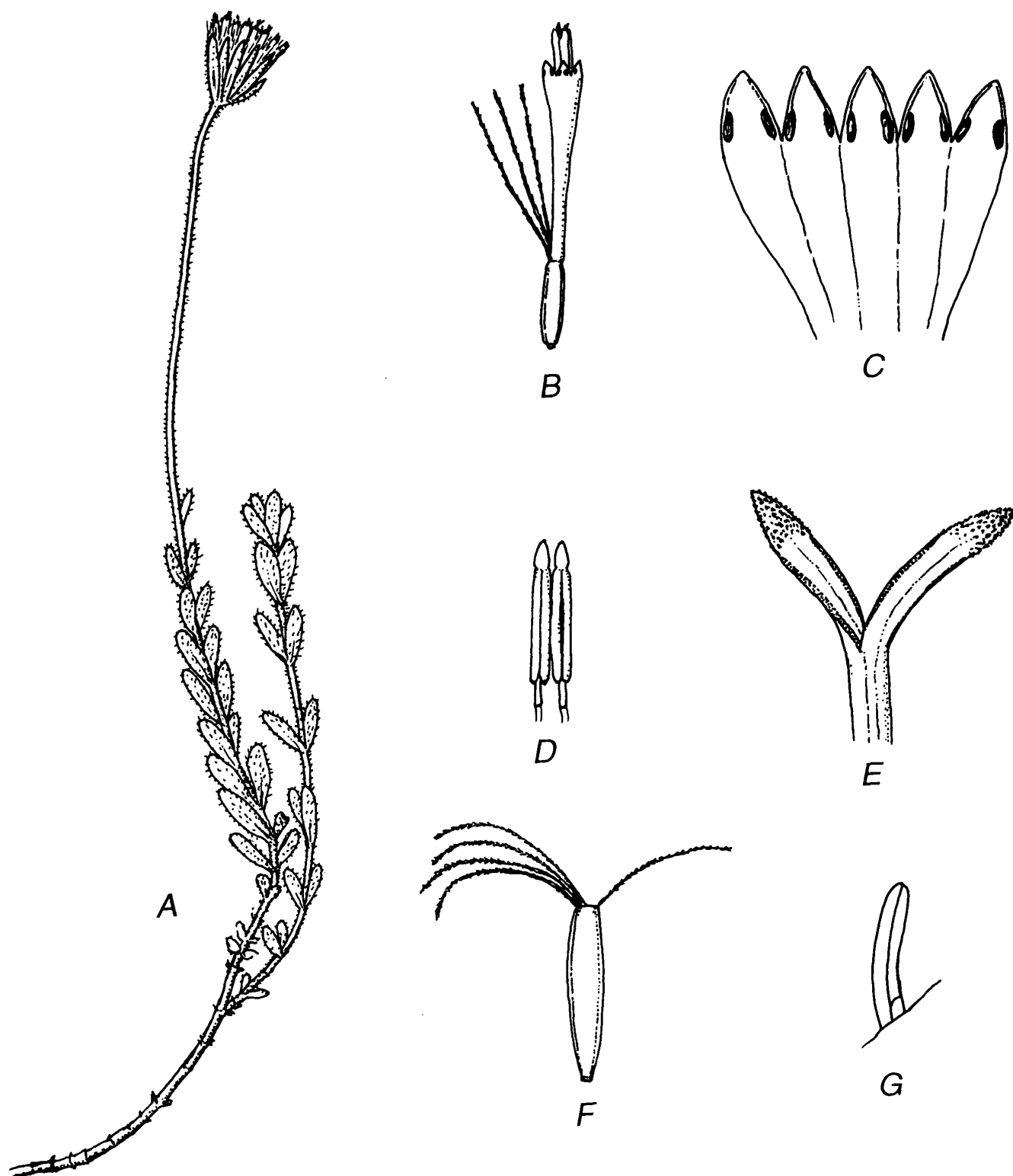


FIG. 1. *Roodebergia kitamura* B. Nord. (drawn from isotype in BOL).

A: Habit, x1. B: Floret, with only some pappus bristles shown, x4.5. C: Corolla, laid out, x9. D: Anthers, x9. E: Style branches, x19. F: Cypsela with some pappus bristles, x4.5. G: Microscopic twin hair from cypsela, x200. - Del. B. Nordenstam.

into distinct subtribes" (Bentham 1873b). This provisional classification lasted for more than a century, until a seventh subtribe was proposed (Cuatrecasas 1969). Much of this subtribal classification relied on the structure, arrangement and colour of the female marginal florets, rendering the assignment of discoid genera to a subtribe difficult.

More recent authors have attempted to define monophyletic groups as subtribes. Grau (1977) regarded two of the traditional subtribes as natural groups, but preferred to not recognize any subtribes, pending further studies and the search for new characters. Zhang & Bremer (1993) revised the subtribal classification by cladistic analysis and concluded that three subtribes could be recognized with some confidence, viz. the *Grangeinae*, *Solidagininae* and an enlarged

and amended *Asterinae*. *Roodebergia* fits comfortably within the broadened concept of *Asterinae*.

Grau (in sched.) suggested that our plant might be a *Pteronia*, a genus placed with some hesitation in the *Solidagininae* by Bremer (1994). However, Bremer stressed the uncertainty of its subtribal position and possible affinity to the *Amellus* Group of the *Asterinae*.

Pteronia and *Roodebergia* do have some characters in common such as the opposite leaves and discoid capitula, but they differ markedly in habit and involucre. *Pteronia* comprises shrubs or shrublets with distinctly imbricate and unequal involucral bracts, a chaffy receptacle, terete (not compressed) cypselas, and unequal pappus bristles.

Roodebergia belongs clearly in the *Amellus*

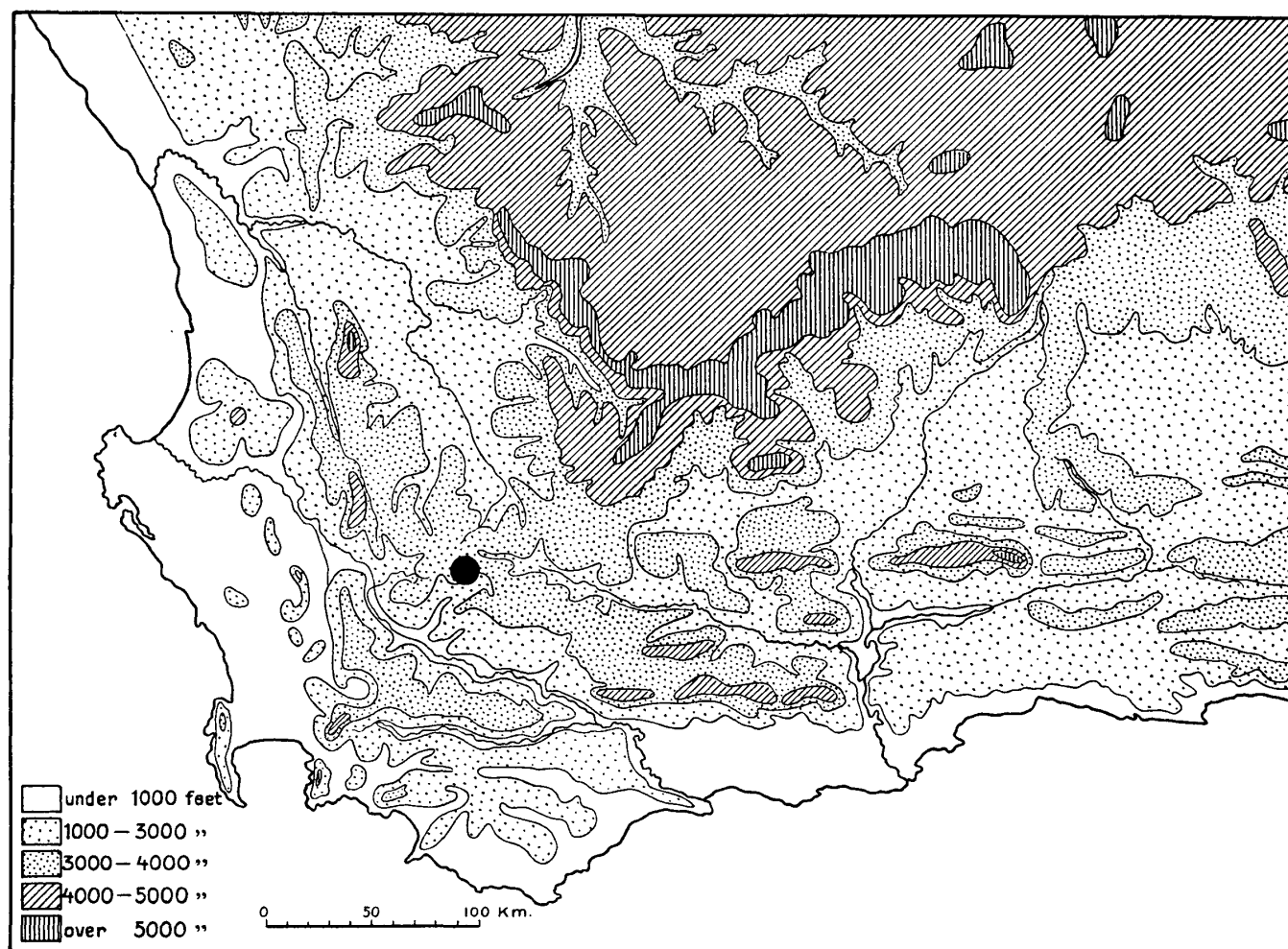


FIG. 2. Map of SW Cape Province, showing distribution of *Roodebergia kitamura* B. Nord.

Group of the *Asterinae* (Grau 1973, Bremer 1994), a predominantly African alliance of hitherto nine genera, to which now *Roodebergia* can be added and possibly also *Pteronia*. *Roodebergia* differs from many but not all genera in the group by the discoid capitula and opposite leaves. The reddish or purplish tinge to the disc florets is not a totally reliable character. Although the genera of the *Amellus* Group normally have yellow disc florets, a purplish tinge can occur occasionally (e.g. in *Felicia cymbalariae* (Ait.) Bolus & W. Dod ex Adams. & Salt.).

In habit *Roodebergia* resembles some of the *Felicia* species with opposite leaves (e.g., *Felicia denticulata* Grau, *F. cymbalariae* ssp. *ionops* (Harv.) Grau, *F. joubertinae* Grau, and especially *F. diffusa* (DC.) Grau). One *Felicia* species is consistently discoid, viz., *F. macrorrhiza* (Thunb.) DC. However, all other *Felicias* are radiate and have a uniseriate pappus, and the majority are alternate-leaved and have generally pubescent and strongly compressed cypselas with distinct marginal ribs. It is possible anyway that *Felicia* is the most closely related genus.

The other genera of the *Amellus* Group, such as *Amellus*, *Chrysocoma*, *Heteromma*, *Nolletia*,

Poecilolepis, *Polyarrhena* etc., are more different in several characters and not likely to be confused with our new genus.

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